ENTERED   OIPE

RAW SEQUENCE LISTING   DATE: 03/21/2003
PATENT APPLICATION: **US/09/839,073**   TIME: 13:05:05

Input Set : **A:\13492.seq.txt**
Output Set: **N:\CRF4\03212003\I839073.raw**

```
 3 <110> APPLICANT: Sacktor, Todd C.
 5 <120> TITLE OF INVENTION: A MEMORY ENHANCING PROTEIN
 7 <130> FILE REFERENCE: The Research Foundation Albany
 9 <140> CURRENT APPLICATION NUMBER: 09/839,073
```
C--> 10 **<141> CURRENT FILING DATE: 2003-03-17**
```
12 <160> NUMBER OF SEQ ID NOS: 4
14 <170> SOFTWARE: PatentIn Ver. 2.1
16 <210> SEQ ID NO: 1
17 <211> LENGTH: 2058
18 <212> TYPE: DNA
19 <213> ORGANISM: Homo sapiens
21 <220> FEATURE:
22 <221> NAME/KEY: CDS
23 <222> LOCATION: (444)..(1670)
25 <220> FEATURE:
26 <221> NAME/KEY: unsure
27 <222> LOCATION: (522)
28 <223> OTHER INFORMATION: r at position 522 is g or a
30 <400> SEQUENCE: 1
31 cccgggcctg gagacatgag gaggcaggga tgtgaggggc gggggacagg acagccggcc 60
33 ttccgttaaa tatctgctcc tcgcgctcga gcctccctgc ctattgtcgg ggccggagcg 120
35 aagccgacgc agcatcagct cgtcaacggg aaggaagatg cctccctgca cgcccgccgc 180
37 gcacagagca taaagaatct gcgctgagga ggcaggagaa gaaagccgaa tctatctacc 240
39 gccggggagc cagaagatgg aggaagctgt accgtgccaa cggccacctc ttccaagcca 300
41 agcgctttaa caggagagcg tactgcggtc agtgcagcga gaggatatgg ggcctcgcga 360
43 ggcaaggcta caggtgcatc aactgcaaac tgctggtcca taagcgctgc acggcctcg 420
45 tcccgctgac ctgcaggaag cat atg gat tct gtc atg cct tcc caa gag cct 473
46                                 Met Asp Ser Val Met Pro Ser Gln Glu Pro
47                                  1               5                  10
49 cca gta gac gac aag aac gag gac gcc gac ctt cct tcc gag gag aca     521
50 Pro Val Asp Asp Lys Asn Glu Asp Ala Asp Leu Pro Ser Glu Glu Thr
51               15               20               25
53 rat gga att gct tac att tcc tca tcc cgg aag cat gac agc att aaa     569
```
W--> 54 **Xaa Gly Ile Ala Tyr Ile Ser Ser Ser Arg Lys His Asp Ser Ile Lys**
```
55          30               35               40
57 gac gac tcg gag gac ctt aag cca gtt atc gat ggg atg gat gga atc     617
58 Asp Asp Ser Glu Asp Leu Lys Pro Val Ile Asp Gly Met Asp Gly Ile
59          45               50               55
61 aaa atc tct cag ggg ctt ggg ctg cag gac ttt gac cta atc aga gtc     665
62 Lys Ile Ser Gln Gly Leu Gly Leu Gln Asp Phe Asp Leu Ile Arg Val
63       60               65               70
66 atc ggg cgc ggg agc tac gcc aag gtt ctc ctg gtg cgg ttg aag aag     713
67 Ile Gly Arg Gly Ser Tyr Ala Lys Val Leu Leu Val Arg Leu Lys Lys
```

```
 68    75                    80                   85                    90
 70 aat gac caa att tac gcc atg aaa gtg gtg aag aaa gag ctg gtg cat     761
 71 Asn Asp Gln Ile Tyr Ala Met Lys Val Val Lys Lys Glu Leu Val His
 72                   95                   100                  105
 74 gat gac gag gat att gac tgg gta cag aca gag aag cac gtg ttt gag     809
 75 Asp Asp Glu Asp Ile Asp Trp Val Gln Thr Glu Lys His Val Phe Glu
 76                   110                  115                  120
 78 cag gca tcc agc aac ccc ttc ctg gtc gga tta cac tcc tgc ttc cag     857
 79 Gln Ala Ser Ser Asn Pro Phe Leu Val Gly Leu His Ser Cys Phe Gln
 80            125                  130                  135
 82 acg aca agt cgg ttg ttc ctg gtc att gag tac gtc aac ggc ggg gac     905
 83 Thr Thr Ser Arg Leu Phe Leu Val Ile Glu Tyr Val Asn Gly Gly Asp
 84         140                  145                  150
 86 ctg atg ttc cac atg cag agg cag agg aag ctc cct gag gag cac gcc     953
 87 Leu Met Phe His Met Gln Arg Gln Arg Lys Leu Pro Glu Glu His Ala
 88 155                  160                  165                  170
 90 agg ttc tac gcg gcc gag atc tgc atc gcc ctc aac ttc ctg cac gag    1001
 91 Arg Phe Tyr Ala Ala Glu Ile Cys Ile Ala Leu Asn Phe Leu His Glu
 92                   175                  180                  185
 94 agg ggg atc atc tac agg gac ctg aag ctg gac aac gtc ctc ctg gat    1049
 95 Arg Gly Ile Ile Tyr Arg Asp Leu Lys Leu Asp Asn Val Leu Leu Asp
 96                   190                  195                  200
 98 gcg gac ggg cac atc aag ctc aca gac tac ggc atg tgc aag gaa ggc    1097
 99 Ala Asp Gly His Ile Lys Leu Thr Asp Tyr Gly Met Cys Lys Glu Gly
100            205                  210                  215
102 ctg ggc cct ggt gac aca acg agc act ttc tgc gga acc ccg aat tac    1145
103 Leu Gly Pro Gly Asp Thr Thr Ser Thr Phe Cys Gly Thr Pro Asn Tyr
104         220                  225                  230
106 atc gcc ccc gaa atc ctg cgg gga gag gag tac ggg ttc agc gtg gac    1193
107 Ile Ala Pro Glu Ile Leu Arg Gly Glu Glu Tyr Gly Phe Ser Val Asp
108 235                  240                  245                  250
110 tgg tgg gcg ctg gga gtc ctc atg ttt gag atg atg gcc ggg cgc tcc    1241
111 Trp Trp Ala Leu Gly Val Leu Met Phe Glu Met Met Ala Gly Arg Ser
112                   255                  260                  265
114 ccg ttc gac atc atc acc gac aac ccg gac atg aac aca gag gac tac    1289
115 Pro Phe Asp Ile Ile Thr Asp Asn Pro Asp Met Asn Thr Glu Asp Tyr
116                   270                  275                  280
118 ctt ttc caa gtg atc ctg gag aag ccc atc cgg atc ccc cgg ttc ctg    1337
119 Leu Phe Gln Val Ile Leu Glu Lys Pro Ile Arg Ile Pro Arg Phe Leu
120         285                  290                  295
122 tcc gtc aaa gcc tcc cat gtt tta aaa gga ttt tta aat aag gac ccc    1385
123 Ser Val Lys Ala Ser His Val Leu Lys Gly Phe Leu Asn Lys Asp Pro
124         300                  305                  310
126 aaa gag agg ctc ggc tgc cgg cca cag act gga ttt tct gac atc aag    1433
127 Lys Glu Arg Leu Gly Cys Arg Pro Gln Thr Gly Phe Ser Asp Ile Lys
128 315                  320                  325                  330
131 tcc cac gcg ttc ttc cgc agc ata gac tgg gac ttg ctg gag aag aag    1481
132 Ser His Ala Phe Phe Arg Ser Ile Asp Trp Asp Leu Leu Glu Lys Lys
133                   335                  340                  345
```

RAW SEQUENCE LISTING   DATE: 03/21/2003
PATENT APPLICATION: **US/09/839,073**   TIME: 13:05:05

Input Set : **A:\13492.seq.txt**
Output Set: **N:\CRF4\03212003\I839073.raw**

```
135 cag gcg ctc cct cca ttc cag cca cag atc aca gac gac tac ggt ctg   1529
136 Gln Ala Leu Pro Pro Phe Gln Pro Gln Ile Thr Asp Asp Tyr Gly Leu
137             350             355             360
139 gac aac ttt gac aca cag ttc acc agc gag ccc gtg cag ctg acc cca   1577
140 Asp Asn Phe Asp Thr Gln Phe Thr Ser Glu Pro Val Gln Leu Thr Pro
141             365             370             375
143 gac gat gag gat gcc ata aag agg atc gac cag tca gag ttc gaa ggc   1625
144 Asp Asp Glu Asp Ala Ile Lys Arg Ile Asp Gln Ser Glu Phe Glu Gly
145     380             385             390
147 ttt gag tat atc aac cca tta ttg ctg tcc acc gag gag tcg gtg       1670
148 Phe Glu Tyr Ile Asn Pro Leu Leu Leu Ser Thr Glu Glu Ser Val
149 395             400             405
151 tgaggccgcg tgcgtctctg tcgtggacac gcgtgattga ccctttaact gtatccttaa 1730
153 ccaccgcata tgcatgccag gctgggcacg gctccgaggg cggccaggga cagacgcttg 1790
155 cgccgagacc gcagagggaa gcgtcagcgg gcgctgctgg gagcagaaca gtccctcaca 1850
157 cctggcccgg caggcagctt cgtgctggag gaacttgctg ctgtgcctgc gtcgcggcgg 1910
159 atccgcgggg accctgccga gggggctgtc atgcggtttc caaggtgcac attttccacg 1970
161 gaaacagaac tcgatgcact gacctgctcc gccaggaaag tgagcgtgta gcgtcctgag 2030
163 gaataaaatg ttccgatgaa aaaaaaaa                                     2058
166 <210> SEQ ID NO: 2
167 <211> LENGTH: 409
168 <212> TYPE: PRT
169 <213> ORGANISM: Homo sapiens
171 <220> FEATURE:
172 <221> NAME/KEY: unsure
173 <222> LOCATION: (27)
174 <223> OTHER INFORMATION: Xaa at position 27 is Asp or Asn
177 <400> SEQUENCE: 2
178 Met Asp Ser Val Met Pro Ser Gln Glu Pro Pro Val Asp Asp Lys Asn
179  1               5               10              15
```
W--> **181 Glu Asp Ala Asp Leu Pro Ser Glu Glu Thr Xaa Gly Ile Ala Tyr Ile**
```
182             20              25              30
184 Ser Ser Ser Arg Lys His Asp Ser Ile Lys Asp Asp Ser Glu Asp Leu
185         35              40              45
187 Lys Pro Val Ile Asp Gly Met Asp Gly Ile Lys Ile Ser Gln Gly Leu
188     50              55              60
190 Gly Leu Gln Asp Phe Asp Leu Ile Arg Val Ile Gly Arg Gly Ser Tyr
191 65              70              75              80
193 Ala Lys Val Leu Leu Val Arg Leu Lys Lys Asn Asp Gln Ile Tyr Ala
194             85              90              95
196 Met Lys Val Val Lys Lys Glu Leu Val His Asp Asp Glu Asp Ile Asp
197             100             105             110
199 Trp Val Gln Thr Glu Lys His Val Phe Glu Gln Ala Ser Ser Asn Pro
200     115             120             125
202 Phe Leu Val Gly Leu His Ser Cys Phe Gln Thr Thr Ser Arg Leu Phe
203     130             135             140
205 Leu Val Ile Glu Tyr Val Asn Gly Gly Asp Leu Met Phe His Met Gln
206 145             150             155             160
208 Arg Gln Arg Lys Leu Pro Glu Glu His Ala Arg Phe Tyr Ala Ala Glu
```

RAW SEQUENCE LISTING   DATE: 03/21/2003
PATENT APPLICATION: **US/09/839,073**   TIME: 13:05:05

Input Set : **A:\13492.seq.txt**
Output Set: **N:\CRF4\03212003\I839073.raw**

```
209                   165                  170                  175
211 Ile Cys Ile Ala Leu Asn Phe Leu His Glu Arg Gly Ile Ile Tyr Arg
212             180                  185                  190
214 Asp Leu Lys Leu Asp Asn Val Leu Leu Asp Ala Asp Gly His Ile Lys
215          195                  200                  205
217 Leu Thr Asp Tyr Gly Met Cys Lys Glu Gly Leu Gly Pro Gly Asp Thr
218      210                  215                  220
220 Thr Ser Thr Phe Cys Gly Thr Pro Asn Tyr Ile Ala Pro Glu Ile Leu
221 225                  230                  235                  240
223 Arg Gly Glu Glu Tyr Gly Phe Ser Val Asp Trp Trp Ala Leu Gly Val
224             245                  250                  255
226 Leu Met Phe Glu Met Met Ala Gly Arg Ser Pro Phe Asp Ile Ile Thr
227          260                  265                  270
229 Asp Asn Pro Asp Met Asn Thr Glu Asp Tyr Leu Phe Gln Val Ile Leu
230          275                  280                  285
232 Glu Lys Pro Ile Arg Ile Pro Arg Phe Leu Ser Val Lys Ala Ser His
233      290                  295                  300
235 Val Leu Lys Gly Phe Leu Asn Lys Asp Pro Lys Glu Arg Leu Gly Cys
236 305                  310                  315                  320
238 Arg Pro Gln Thr Gly Phe Ser Asp Ile Lys Ser His Ala Phe Phe Arg
239             325                  330                  335
241 Ser Ile Asp Trp Asp Leu Leu Glu Lys Lys Gln Ala Leu Pro Pro Phe
242          340                  345                  350
244 Gln Pro Gln Ile Thr Asp Asp Tyr Gly Leu Asp Asn Phe Asp Thr Gln
245      355                  360                  365
247 Phe Thr Ser Glu Pro Val Gln Leu Thr Pro Asp Asp Glu Asp Ala Ile
248      370                  375                  380
250 Lys Arg Ile Asp Gln Ser Glu Phe Glu Gly Phe Glu Tyr Ile Asn Pro
251 385                  390                  395                  400
253 Leu Leu Leu Ser Thr Glu Glu Ser Val
254          405
258 <210> SEQ ID NO: 3
259 <211> LENGTH: 2058
261 <212> TYPE: DNA
262 <213> ORGANISM: Homo sapiens
264 <400> SEQUENCE: 3
265 gggcccggac ctctgtactc ctccgtccct acactccccg ccccctgtcc tgtcggccgg 60
266 aaggcaattt atagacgagg agcgcgagct cggagggacg gataacagcc ccggcctcgc 120
267 ttcggctgcg tcgtagtcga gcagttgccc ttccttctac ggagggacgt gcgggcggcg 180
268 cgtgtctcgt atttcttaga cgcgactcct ccgtcctctt ctttcggctt agatagatgg 240
269 cggcccctcg gtcttctacc tccttcgaca tggcacggtt gccggtggag aaggttcggt 300
270 tcgcgaaatt gtcctctcgc atgacgccag tcacgtcgct ctcctatacc ccggagcgct 360
271 ccgttccgat gtccacgtag ttgacgtttg acgaccaggt attcgcgacg gtgccggagc 420
272 agggcgactg gacgtccttc gtatacctaa gacagtacgg aagggttctc ggaggtcatc 480
273 tgctgttctt gctcctgcgg ctggaaggaa ggctcctctg tctaccttaa cgaatgtaaa 540
274 ggagtagggc cttcgtactg tcgtaatttc tgctgagcct cctggaattc ggtcaatagc 600
275 taccctacct accttagttt tagagagtcc ccgaacccga cgtcctgaaa ctggattagt 660
276 ctcagtagcc cgcgccctcg atgcggttcc aagaggacca cgccaacttc ttcttactgg 720
277 tttaaatgcg gtactttcac cacttctttc tcgaccacgt actactgctc ctataactga 780
```

RAW SEQUENCE LISTING   DATE: 03/21/2003
PATENT APPLICATION: **US/09/839,073**   TIME: 13:05:05

Input Set : **A:\13492.seq.txt**
Output Set: **N:\CRF4\03212003\I839073.raw**

```
278 cccatgtctg tctcttcgtg cacaaactcg tccgtaggtc gttggggaag gaccagccta 840
279 atgtgaggac gaaggtctgc tgttcagcca acaaggacca gtaactcatg cagttgccgc 900
280 ccctggacta caaggtgtac gtctccgtct ccttcgaggg actcctcgtg cggtccaaga 960
281 tgcgccggct ctagacgtag cgggagttga aggacgtgct ctcccctag tagatgtccc 1020
282 tggacttcga cctgttgcag gaggacctac gcctgcccgt gtagttcgag tgtctgatgc 1080
283 cgtacacgtt ccttccggac ccgggaccac tgtgttgctc gtgaaagacg ccttggggct 1140
284 taatgtagcg ggggctttag gacgcccctc tcctcatgcc caagtcgcac ctgaccaccc 1200
285 gcgaccctca ggagtacaaa ctctactacc ggcccgcgag gggcaagctg tagtagtggc 1260
286 tgttgggcct gtacttgtgt ctcctgatgg aaaaggttca ctaggacctc ttcgggtagg 1320
287 cctaggggcc caaggacagg cagtttcgga gggtacaaaa ttttcctaaa aatttattcc 1380
288 tggggtttct ctccgagccg acggccggtg tctgacctaa aagactgtag ttcagggtgc 1440
289 gcaagaaggc gtcgtatctg accctgaacg acctcttctt cgtccgcgag ggaggtaagg 1500
290 tcggtgtcta gtgtctgctg atgccagacc tgttgaaact gtgtgtcaag tggtcgctcg 1560
291 ggcacgtcga ctggggtctg ctactcctac ggtatttctc ctagctggtc agtctcaagc 1620
292 ttccgaaact catatagttg ggtaataacg acaggtggct cctcagccac actccggcgc 1680
293 acgcagagac agcacctgtg cgcactaact gggaaattga cataggaatt ggtggcgtat 1740
294 acgtacggtc cgacccgtgc cgaggctccc gccggtccct gtctgcgaac gcggctctgg 1800
296 cgtctccctt cgcagtcgcc cgcgacgacc ctcgtcttgt cagggagtgt ggaccgggcc 1860
297 gtccgtcgaa gcacgacctc cttgaacgac gacacggacg cagcgccgcc taggcgcccc 1920
298 tgggacggct cccccgacag tacgccaaag gttccacgtg taaaaggtgc ctttgtcttg 1980
299 agctacgtga ctggacgagg cggtcctttc actcgcacat cgcaggactc cttattttac 2040
300 aaggctactt tttttttt                                              2058
303 <210> SEQ ID NO: 4
304 <211> LENGTH: 13
305 <212> TYPE: PRT
306 <213> ORGANISM: Unknown Organism
308 <220> FEATURE:
309 <223> OTHER INFORMATION: Description of Unknown Organism: mzip peptide
311 <400> SEQUENCE: 4
312 Ser Ile Tyr Arg Arg Gly Ala Arg Arg Trp Arg Lys Leu
313  1               5                   10
```

RAW SEQUENCE LISTING ERROR SUMMARY   DATE: 03/21/2003
PATENT APPLICATION: **US/09/839,073**   TIME: 13:05:06

Input Set : **A:\13492.seq.txt**
Output Set: **N:\CRF4\03212003\I839073.raw**

Please Note:
Use of n and/or Xaa have been detected in the Sequence Listing. Please review the
Sequence Listing to ensure that a corresponding explanation is presented in the <220>
to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; Xaa Pos. 27
Seq#:2; Xaa Pos. 27

VERIFICATION SUMMARY   DATE: 03/21/2003
PATENT APPLICATION: **US/09/839,073**   TIME: 13:05:06

Input Set : **A:\13492.seq.txt**
Output Set: **N:\CRF4\03212003\I839073.raw**

L:10 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:54 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:569
L:181 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:16